

THE  
**SOUTHERN AGRICULTURIST.**  
DECEMBER, 1832.

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**PART I.**

**ORIGINAL CORRESPONDENCE.**

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**ART. XC.—*An Address delivered before the Agricultural Society of South-Carolina, September 18th, 1832; by EDWARD R. LAURENS, Esq.***

(Concluded from page 567.)

By far the greatest evil, however, which slaveholding communities have to contend with, is an intermediate population, without whose presence and daily association with our slaves very little regard would be paid to insurrectionary movements among the slaves themselves, and still less to foreign interference. “In considering the evils to be apprehended from the free people of colour, we must” (in the language of the Charleston Memorial, from which I shall here quote largely, as expressing in full my own views, and enforcing them by the sanction of a great portion of my fellow-citizens) “consider the relative situation ‘in which they stand, both to the whites and to the slaves: ‘they form a third class in our community, enjoying greater ‘privileges than the slaves, and yet possessing few of the ‘rights of the master; a class of persons, having and exercising the right of moving, unrestrained, over every part of ‘the State—of acquiring property to an unlimited extent—‘of procuring information on every subject, and of uniting ‘themselves in associations and societies; yet, still, a class ‘deprived of all political rights,” (save such as they are indirectly possessed of)—“subjected, equally with the slave, ‘to our police regulations for persons of colour, and sensi-

'ble, that by no peaceable and legal method, can they render themselves other than a degraded class in your community. Now, the very circumstance of their being in the possession of a degree of freedom," creates a thirst for its perfection; "and the very nature of things will teach us, that the free-coloured population must be discontented with their situation, and that they will embrace the first favourable opportunity" of attaining all the rights, privileges and immunities of the whites. "The efforts of man to obtain any given object, are always proportioned to the animation of his hopes, or to the energy of his despair; the hopes of the free-coloured population will increase with their numbers, and when they shall have equalled the whites, which it can easily be shewn will happen before many years have passed,\* they will expect, and claim, all the rights of citizens, which, if denied them, as they will and must be, will inevitably drive them, in very desperation, to obtain that by force, which can be effected in no other way. Then, indeed, will the evil have become of such a magnitude, as will render it almost impossible to be removed. One of the most important causes which must operate upon the relative increase of this class, may be found in the well-established fact, that they will not emigrate;† they have so little to hope for,

\* The ratio of increase is fully shewn by the following table:—

<i>Year.</i>	<i>Authority,</i>	<i>White.</i>	<i>Free Col'd.</i>	<i>Slaves.</i>	<i>Total.</i>
1670,....	Estimate, .....	159.....	—.....	—.....	150
1701,....	Dr. Humphreys,.....	—.....	—.....	—.....	7,000
1724,....	Dr. Hewit,.....	14,000.....	—.....	18,000.....	32,000
1734,....	Dr. Hewit,.....	8,000.....	—.....	22,000.....	30,000
1739,....	Dr. Hewit,.....	—.....	—.....	40,000.....	40,000
1753,....	Provincial Census, ....	30,000.....	—.....	—.....	—
1763,....	Dr. Milligan, .....	35,000.....	—.....	70,000.....	105,000
1765,....	Dr. Hewit,.....	38,000.....	—.....	85,000.....	123,000
1790,....	U. States' Census, ....	140,178.....	1,801.....	107,094.....	249,073
1800,....	U. States' Census, ....	196,255.....	3,185.....	146,151.....	345,591
1810,....	U. States' Census, ....	214,196.....	4,554.....	196,365.....	415,115
1820,....	U. States' Census, ....	237,440.....	6,826 .....	258,475.....	512,740
1830,....	U. States' Census, ....	257,863.....	7,921.....	315,401.....	581,185

† Contrary to the at present received opinion, I have not much faith in their becoming enamoured of Liberia's charms; nor do I apprehend that much attention will be paid to the invitation of citizen Charles Snetter, who has been gazetted in some of our papers as accredited agent from an association of coloured persons in this town, and who having performed the duties appertaining to his mission, viz. that of spying out the land, has recently issued a manifesto thereof, in which he invites his constituents, one and all, to follow his example, and to take refuge in that land, where, to use his own words, he is now reposing "beneath the shade of his own vine and fig-tree."

'and so much to dread, from any change of place, that they will adhere to the spot of their nativity under the pressure of almost any inconvenience, rather than seek to improve their condition in distant lands. As they multiply they are bred up to the mechanical arts," or to the performance of such other labours, as in countries, blessed with a purer population, are usually discharged by the poorer classes of whites, "of course they must come in competition here with these classes, and as, before many years have elapsed, the quantity of labour must greatly exceed the demand, employment must be sought where the demand is greater—one class, therefore, must emigrate; and, as it is notorious that the free people of colour never will, the whites must. So, that as the one class fatally extend their lines, the other yet more fatally contract theirs."

This is not mere speculation, but a fact which was abundantly proved ten years ago, and which every day but too fully exemplifies. Our white artisans and mechanics are driven from their honest trades to earn their bread by other means; or to take refuge, from the suicidal counsels of their country, in other far distant lands. Let any one, however, who would choose impartially to judge for himself, walk through the streets of our ill-fated city, and see how certainly—how surely, and I might even add, how rapidly, all the mechanical arts, and all the ordinary avocations of those who are forced to earn, by actual labour, that daily bread for which we are all taught daily to pray—are becoming overstocked by persons of colour, to the ultimate exclusion of the bone and sinew of our population—to the ultimate and entire exclusion of those who are highly encouraged every where but here—here, where worse than savage massacre may yet be the consequence of their absence.

The unhealthiness of our climate is adduced as a reason for our having among us but few white operatives. The assertion, however, is false in theory, and unfounded in fact; for the old established truism, that the supply will always equal the demand, convinces us that we have but to offer liberal encouragement, and free protection, to ensure ourselves an ample supply of white mechanics, white draymen, and white labourers. "Achates,"\* says, "That

\* A pamphlet generally attributed to the late Major-General Thos. Pinckney.

'our climate will not deter from emigrations, may be safely inferred from the redundant population of Constantinople and Bavaria, the head quarters of the plague ;' to which we may add a fact nearer home, the readiness with which all our plantations are supplied with overseers.

This (the exclusion of our effective white population) is the great evil of our intermediate class, and if it be not thought sufficient to warrant their entire banishment from the State, it should, at least, induce the enactment of laws which would prohibit their being, directly or indirectly, concerned in any mechanical pursuit whatsoever. They should be confined to those offices of "hewers of wood and drawers of water," which are alone their proper sphere of action. "But" (from the Charleston Memorial once more) "in another view, the existence of this class among us is dangerous. We allude to the influence which it must necessarily have upon our slave population. The superior condition of the free-coloured person excites discontent among the slaves, who have continually before their eyes persons of the same colour, many of whom they have known in slavery, and with all of whom they associate on terms of equality, freed from the control of masters, working when and where they please, going whither they please, and spending their money how they please." The slave, seeing that comparative liberty has been attained by some of his colour, desires it himself; when, were it not for the due evidence of coloured persons before his eyes being free, he would as soon dream of scaling the heavens as attempting so wild an adventure. "Unlike his freed associate, he works not for himself—he becomes dissatisfied with his lot," and pants after that freedom which he can never hope to acquire by purchase or faithful services, for the Legislature have, in mercy to the people, done something towards closing that door; and, although he be successful in persuading some white man (from honest, though ill-founded conviction, culpable interference, or an unenviable weakness of heart) to become, with him, "*particeps criminis*," in an evasion of the law, by undertaking to become his ostensible owner, still the contingency of slavery (in event of his becoming once more a slave, to pay the debts of his ostensible owner) hangs over him, and no complication of ingenuity, or defiance to the law, can shield him from this state of uncertainty. "In an hour that he knows

not of," the hand of a creditor may once more consign him to those shackles from which he had vainly imagined himself entirely disenthralled. How fit a subject for the most hateful, the most insidious of plots, does he not instantly become? His hopes now rest on that course, which, if successful, were death to us—a course which offers as many inducements to the free-coloured, as to the bond, "for as the slave desires to equal his freed associate, so the free man of colour desires to equal the whites." There is an identity of interest between the coloured persons of both classes, which, associated as they are by cast, and connected as they are by intermarriages and friendships it were in vain to attempt to dissolve, it is the interest of the free-coloured population to cherish a spirit of discontent among the slaves, as they would hope to avail themselves of their assistance in promoting their own schemes of ambition—or, if this broad assertion be denied, it is certainly the interest of those who have wives and children, and other relatives, in slavery, to throw themselves, upon an emergency, into the ranks of the slave, and "to carry over to their unhallowed cause their intelligence and their numbers, and to serve them as channels of communication through different parts of the State." Here, again, I am speaking on proved authority, and not from idle speculation. Denmark Vesey, with whom the conspiracy of '22 originated, was a free man, and the partial liberty he enjoyed gave him an opportunity of collecting and preparing the materials for that plot, and of communicating so extensively as he did with the country slaves, without whose co-operation those in the city, mad as they appear to have been, would never have dared to make an attempt at emancipation.

To abate this nuisance (an intermediate population) many projects have been, from time to time, advanced, but they are all liable to the same fault, that of tending immediately to create the very excitement which they are ultimately intended to obviate. The true policy, although it be a stern one, is the entire extinction of the class; and in consideration of the political influence\* which they indi-

\* It is worse than idle to deny that this class possess a degree of influence in Charleston, which might be most fatally exercised; for, independently of those who are professedly and avowedly in favour of an intermediate population, numbers are under their immediate influence; and it redounds but little to the character of our city, than an ordinary trial of a free-coloured person excites

rectly possess through the means of their patrons and guardians, and the yet more hateful power which many of them have over their tenantry among the poorest class of whites, the sanatory remedy—banishment—should be applied, before they shall have too firmly engrafted themselves upon the country. I am aware of, and fully appreciate, the many inconveniences to which this cast would be subjected, if compelled to emigrate, but I am induced to consider the partial evils which they would suffer as far preferable (speaking of our own welfare in contradistinction to theirs) to the withering injury they are daily inflicting on us, by rendering the tenure, under which we hold our property, insecure, and by, from that cause, depreciating its actually intrinsic value.

I am prepared to be esteemed unwarrantably harsh in the several positions which I have brought before you on this occasion; but, under your favourable indulgence, will, before you pass sentence upon me, enter into an examination of the doctrine of clemency, as peculiarly applicable to the present issue. Clemency,\* as it is explained by moralists and theologians, is decidedly a virtue; but as it is understood by the people in general, it is no less decidedly a vice. If we advert to the doctrine of clemency as laid down by St. Thomas, we will find it explained as not inconsistent with the most wholesome severity; but this is not the opinion of the people in general, for in their minds these qualities (clemency and severity) are essentially different, and that which they term severe, is unhesitatingly denied to be clement; thus, we may at a glance perceive, that the signification given to this word by the people, is far different from that which is attached to it by the learned. Severity, in the opinion of these last (the learned) is an habitual inflexibility of the mind, which will not relax in the punishment of crimes, whenever the dictates of right reason require that they should be punished. Clemency, as also explained by them, is an habitual disposition to

a greater degree of interest among all classes of our population, than almost any other legal investigation of which our courts are competent. Witness the late trial for assault, with intent to kill, when a plain matter of fact case, which any parish court would have settled in five minutes, became subject for two days' deliberation, and where hundreds crowded the hall of justice, betraying as much excitement as could have been manifested at the impeachment of an executive, admired for his virtues, or detested for his crimes.

\* Feyjou's *Moral and Political Paradoxes*.

lessen the punishment of crimes, whenever the same right reason dictates that it should be lessened. “*Quando oportet et in quibus oportet,*” says St. Thomas, and it is from his doctrine that this definition is taken. It is, therefore, clear, that so far from an opposition, there is rather an agreeable harmony between these two qualities. In further exemplification, that magistrate is clement, in the opinion of the people, who is to be wrought upon by the supplication of friends—the tears, and feigned repentance of the guilty—the prayers of the widow—the cries of the orphan—and all the “pomp and circumstance” of woe—who indulges the natural softness of his heart, and is induced, from these motives, and these alone, to mitigate the punishment which laws have allotted to crime. Not so with the learned: they esteem this no clemency—the rather manifest injustice to those whom he is set over; they regard it as an undesirable weakness of the mind cloaked under the heavenly garb of mercy—they look upon him as a protector and encourager of crime—an indirect tyrant of the State, and an abettor of all those evils, for the restraint of which laws are given. In their opinion, he alone is truly clement, who, after duly weighing and considering all the particulars and circumstances of a case, is convinced, by the dictates of right reason, that he ought to lessen the punishment assigned to a crime by the law, and does lessen it in consequence of such conviction. This is strictly in conformity with the doctrine already quoted; and we may hence infer, that the exercise of *true* clemency can never be *arbitrary*, or, in other words, that the lessening a punishment which the law prescribes for guilt, can never be supposed to depend upon the *mere will* of a magistrate. He *ought* only to lessen it when he finds, after mature consideration, that it should be lessened; for if the circumstances of the case would not justify the exercise of his pardoning prerogative, the law should be left to the exercise of its own course. There is no middle way, for clemency is a moderating virtue, which, if exercised with excessive zeal, becomes truly vicious. The just motives for lessening punishment in various cases, are, for instance, the antecedent merits of the convict—the use he may be of to the public—his known ignorance of the consequence of his conduct—or the inadvertence with which the crime was committed. But, in general, unless the circumstances of the case afford just

grounds for departing from the letter of the law, there is no room for clemency, as an undue exercise of mercy would be injustice, and as we might as soon expect the same tree to bring forth good and bad fruit, as the same action to conform to one principle of virtue, whilst it violates another. As of a magistrate, so of a community; and as of enforcing the laws, so of their enactment. To those persons, however, whose natural tenderness of heart turns, from the strong remedy which I would apply, to the existing evils among us, I would prescribe an admirable course of conduct, which, whilst it will strengthen and fortify the heart, shall not lessen its charities, nor abate one iota of its kindly sympathy. Let them direct their attention to another subject, and make that the object of their compassion; let them turn their eyes from the fancied and imaginary evils to which our free-coloured population would be subjected, if forced to emigrate, and think of their own wives and children, whom every day subjects to the possible occurrence of calamities of which I will not trust myself to speak; let them think that the evil grows daily, and that, if not met and grappled with, it will soon become so herculean as to hurl them from their high stand, and fearfully make them *feel* that weakness which they are now so loth to allow.

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ART. XCI.—*On eradicating the Blessed Thistle, with some observations on the properties of the Poison Root, Quiona, and Gama Grass; by AN EXOTIC.*

*Mr. Editor*,—I have often passed through my neighbours' pastures with regret, at witnessing the surface of the ground mostly covered with, what I believe is called by some, the '*blessed thistle*'; and, from the regard with which this weed appears to be held in some folks' enclosures, it would really seem to deserve the name; or, that it was looked at with hallowed veneration by the owner as a national emblem. This thistle keeps at a distance every species of stock, and wherever it grows, the grass around it is looked at, in vain, by some hungry beast, with anx-

tous solicitude. It deteriorates the soil as much as cotton, corn, or any other plant; and looks defiance at the approach even of the owner. To attempt to ride through a forest of these weeds, requires the fortitude of horse and rider, nearly as much so as to pass through a mosquito-swamp in silk-stockinet pantaloons; and yet, with all these imperfections and hostilities, this weed is suffered to exercise its rights on our plantations, unheeded and uncontroled. It is to solicit the attention of planters generally, that I avail myself of the opportunity of your useful paper, in suggesting such measures as my practical knowledge affords, that they may annually attend to, for eradicating this obnoxious and useless weed.

By way of stimulus, I will endeavour to convince the reader, that he who will reap it, may likewise make it useful, eventually. About the month of July, when the labour of the field is lessened, the hands are made to travel rapidly over the pasture, as a morning's job; and, with their hoes, regularly cut down, below the surface, every one of these vexatious, cumbrous productions, until not one is left for seed; a wagon, or cart, is then made to pass over the same ground, and a boy, with a sharp-pointed stick, with which he forks each stalk and throws it into his cart, which, when filled, he drives into the cowpen, and thus the noble ox is made to trample under foot an enemy which has hitherto bid defiance to his horns and teeth. This vegetable matter is soon converted into manure, and serves as good a purpose for litter in the pen, as any other trash which may be put there.

Agreeably to your request, I send you the seed of, what is called here, the '*poison root*,' or '*poor man's soap*';\* its botanical name I am unacquainted with. Its properties are certainly valuable to families, and were they generally known, as an article of trade it might be made more profitable than the celebrated madder, which Messrs. Dickerson & Co. have advised us to substitute for cotton, that we may be, thereby, made more thankful for the tariff, as having caused the novelty, at any rate, of a change of culture in the South. But to the *poison root's* properties. It bears, deep in the ground, a large root, which is dug and cut up fine, then put into a large pot, or kettle, of the best

\* It is the *Aesculus Pavia*.—*Ed. So. Agricul.*

water that can be procured—this is boiled well for an hour; the water is then separated from the chips or bits of root, and in this liquid may be washed flannels, blankets, and any kind of woollens whatsoever, which it cleanses, and imparts a softness and brightness to, I have never seen done by any thing else, without injuring the colour. It entirely subdues that hard feeling and offensive smell, which soap or any other substance may have previously imparted to the woollen. It is necessary, previous to the use of the root, to deprive the cloth of grease spots by means of soap, &c., as it does not possess the quality of soap in this respect; after using soap, the woollen must be rinsed in clean water previous to the use of the *poison root*. It is said (but this I will not vouch for from experience) that to prevent the attacks of moths, the clothing which is washed in the root-liquid should be dried in that state, without rinsing, and be packed away for summer.

I almost despair of seeing the ripening of the Quinoa, or South-American rice, the seed of which you were good enough to provide me with. It certainly promises the most abundant crop of any thing I have yet planted; yet, its fruit has kept the same appearance of ripening that it now has, for the last three months. The most forward grains (and a new production seems to go on daily) are yet green. Will they all come to perfection at the same time?

As soon as I saw the Gama-grass seed you sent me, I was convinced it was a native of this State, having previously noticed it growing on dams and banks artificially made. I send you a specimen of it I found in abundance growing on the side of a bank thrown up as a fence about three or four years ago. Respectfully yours,

AN EXOTIC.

**ART. XCII.—*Remarks on the “Sketch of the Life of Eli Whitney,” &c.; by A SMALL PLANTER.***

“St. Matthew’s Parish, October 22, 1832.

**Mr. Editor,—**The sketch of the life of the late Eli Whitney, with some remarks on the invention of the saw-gin, in

your Journal for last August, signed "S." though well written, is not altogether correct, especially as far as regards the origin of the invention, and the dates thereof.

Though I venerate the motive of your correspondent in thus endeavouring to rescue from oblivion the memory of a meritorious individual, and a benefactor of mankind, for such, indeed, Mr. Whitney undoubtedly was, yet *just right* is due to others as well as to him.

By the statement of Mr. "S." the first one of Miller & Whitney's gins was not completed till May, 1799, whereas in the year 1797, to my certain knowledge, Mr. Miller had one in full operation on his plantation on Upton's creek, Wilke's County, Georgia. I visited Georgia the fore part of the same year (1797) and after riding over several counties, I went to see a gentleman in the upper part of Wilke's, to whom I had letters of introduction. This gentleman resided near a Mr. Hutchinson, who lived on a place called Clark's Station, on Clark's creek, in Gen. Clark's neighbourhood. This Mr. Hutchinson had bargained with an ingenious mechanic by the name of Lyons, to make a machine, to be propelled by the gear of his water-mill, that would extract the cotton staple from the seed with more facility and expedition than what had hitherto been done; and the said Hutchinson was to pay Lyons a dollar for every pound the machine would gin in a day. The said gentleman to whom I had letters, and with whom I resided while in that neighbourhood, was appointed by the parties, to superintend the weighing of the ginned cotton. At his request I accompanied him. The machine was put in motion on the day appointed, and, from sun-rise to sun-set, extracted from the seed six hundred and ninety odd pounds of clean ginned cotton. This was the commencement of the existence of the saw gin,\* and the first, I am satisfied, that was ever put into operation. There was a great concourse of people to see this artificial curiosity, among whom were some distinguished characters, eminent for their intelligence and enterprize, and all of whom, as far as I could understand, looked upon Lyons as the genuine inventor of the annular saws.

Some months after this I went to see Mr. Miller's gin on Upton's creek (it also went by water) and found, upon

\* In the month of April, 1797.

examination, that the picking implements were strait wire-teeth driven into a wooden cylinder, and afterwards sharpened with a file. They would have answered the purpose tolerably well could they have been permanently fastened to the cylinder, but the impetus of the operation was too great for the substance they were attached to, which giving way, the teeth would fly out in the midst of the work and occasion considerable trouble and loss of time; it was commonly two days ginning a sufficiency for a bag. A Mr. Wallace, the steward on the Upton creek plantation, informed me, that Miller and Whitney, had no claim on the saw-gin, only for the original principle, and that the annular saws undoubtedly were the original invention of Lyons. Though there is some dissimilarity between Whitney's wire-teeth and Lyons' circular-saws, yet the principle of the mechanism and construction belonged to Whitney; the only difference was, circular-saws were substituted for wire-teeth.

Mr. Whitney resided with Mr. Miller at the time his gin was invented, and it was thought that the genius of Mrs. Miller was a powerful auxiliary in promoting the invention. She was a lady of first rate qualifications, and had been, previous to her espousal to Mr. Miller, the widow of the celebrated Gen. Green, to whom she was so affectionately attached that she accompanied him through all the campaigns of the revolutionary war.\* This brought her acquainted with most of the great men in America, civil and military, particularly the latter. The great commander-in-chief was the bosom-friend of her husband. How gratifying it must have been to a highly gifted young lady (as she at that time undoubtedly was) to be thus initiated into a circle of the first rate characters for prowess, genius and talent, in the United States, or perhaps in the world—in a society composed of the great Washington and his grand compeers. What a school for such a mind!—and what an apt scholar she proved herself to be! Her capacious and luminous mind was well stored with the richest materials for anecdote, of which she was no ways niggardly in using, but without the least shadow of vanity or egotism. Her colloquial powers were great; her voice harmonious, and her conversation fascinating. In short, she was as emin-

\* This I was informed by Mr. Wallace, the steward, and her anecdotes of the war confirmed it.

ently distinguished among women, as her former husband had been among men. She was capable of shining a star of the first magnitude in any female constellation.

Having to go to Savannah, previous to my return to South-Carolina, and having a letter of introduction to Mr. Miller, I called at Mulberry-grove to deliver it to him, and thus got acquainted with his amiable and celebrated lady. This happened in December, 1797.

I remain yours, &c.

A SMALL PLANTER.

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ART. XCIII.—*Answer to Queries of an Observer on the Culture of Rice; by Q. E. D.*

(Concluded from page 580.)

In your last number, Mr. Editor, I answered the six first questions put by "*an Observer*," to rice-planters, and promised to notice the rest hereafter; in the fulfilment of that promise, I now proceed to answer the seventh query, which, in order to be intelligible, I will repeat—

*Will flowing the fields after harvest effectually sprout and rot all the loose ears and grains of rice that may have fallen, so as to prevent the mixture of red-rice?*

No rice-planter ought to be ignorant of the advantage, not to say necessity, which exists, of destroying volunteer-rice. The difficulty of distinguishing it from the crop-rice during the hoeing, the trouble and labour of stripping it, and the great pecuniary loss which results from its admixture with the market-rice, all combine to urge upon us the greatest care and attention to this subject. Yet, strange as it may appear, there are some planters who take little heed of volunteer-rice, and others who regret its existence, without attempting to eradicate it, until the land becomes so entirely polluted as to set all remedy at defiance; while some few even boast of the length of time during which their people are fed upon this extra crop, as I have heard it termed. I recollect, distinctly, seeing one field thrown out in consequence of volunteer-rice occupying the whole

land, and another, on the same plantation, from which four bushels to the acre were collected previous to the harvest, and all this from inattention to the simple precautions requisite to guard against it, which we shall presently detail. For several years, I have not stripped an ear of volunteer-rice, except on the sides of the banks where it is out of the reach of water, and where it will necessarily be shelled while the people are carrying it to the barn-yard. But to proceed to the remedy. So soon as the rice is removed from a square, it is best to glean it and put the water on, taking care to flow very shallow, so as to allow the sun to operate upon the grain. In the course of a week, or ten days, it will be sufficiently sprouted, and we then turn off the water: in a few days more, green spots will show themselves in different parts of the field, and we are thus notified that it is time to destroy this unwelcome visitor. A deep flowing will now put an end to all that has sprouted, or rot all which has become swollen, but which had not forced its way through the ground. The only caution that I think necessary to urge particularly, is, *flow shallow*. It is well known to every rice-planter, that rice will not sprout in deep water, and that it will remain sound at a given depth for an indefinite time. This subject has been already touched upon by one of your contributors, to whose judgment and experience, great deference is due; my allusion is to Col. Bryan, who is so anxious on this subject, that he is willing to flow without gleaning, unless it can be done immediately after the harvest. This I have never been compelled to do; but I certainly would adopt it, rather than allow the rice to remain, during the winter, on the ground, with the chance of sprouting it in the spring, previous to cropping time.

8. *Whether, by this alternate flowing and exposure, the seed of different grasses, which now cause so much labour to keep the crops clean, would not be sprouted and rotted as surely as the grains of scattered rice?*

Our rice-fields are infested by such a variety of grasses, that it is difficult to destroy them all by any one process; some wither and die in the water, while others literally flourish and thrive when apparently overwhelmed with it; much of it, however, is no doubt sprouted and destroyed by the flowing noticed in my answer to the last query; yet we do not sprout them as certainly as we do

the rice. I do not recollect seeing any attempt to account for this, though it seems to me that a reason, at once simple and efficient, can be pointed out. The seeds of most of the grasses are dropped late in July or early in August, and are buried deep under the deposits and washings of the land, while the rice is dropped upon the surface, after the water has been run off with a view to the harvest. The rice on the surface is of course exposed to the action of both water and heat in a much greater degree than the grass-seed; while the latter requires more heat than the former to swell, sprout, and cause it to vegetate. It is thus that the grass-seed is left in the ground, while the shelled rice is sprouted, rotted and destroyed. In order to illustrate and prove my position, I will state a case. Suppose a rice-field, not in good order, was planted in 1832, and treated for volunteer-rice, as I have suggested, and with success. Now if this field is planted in 1833, and not attended in any way, the rice, though fairly put into the ground, and seen fairly out of the ground in the spring, will be overrun by grass during the summer, and at harvest-time it will be difficult to find the crop. This certainly proves, that although the shelled rice was sprouted by overflowing, the grass-seed remained uninjured, and required the vivifying heat of the summer's sun to force it from its hiding place. Trenching with the broad-hoe and open-planting, we are aware, have been proposed as a remedy for the evils we have been deprecating; but, on light lands, planting without covering, is attended with much and serious inconvenience, and for this reason I have not noticed it more particularly. There is one circumstance I had forgotten to mention, from which I have derived advantage, and which I strongly recommend to all planters who suffer much from grass. If they will pass their seed-rice over a hand-seive, the quantity of grass-seed obtained\* will excite astonishment, and it should not be forgotten how small a bulk of these diminutive seeds will plant an acre, and, consequently, how much of it we sow with our rice.

9. *Whether a field, so flowed, would not have the stubble sufficiently rotted to render burning unnecessary in the spring?*

\* About one and a half or two per cent.

9. Rice-stubble requires much time, moisture and heat, to rot it; a winter is not sufficient to accomplish this purpose, unless the land is deeply dug and the stubble turned entirely in. Even this will not always effect the object we have in view, and thus the labour of preparing the land for cultivation is much enhanced. I once bedded several acres of swamp-land, which was very grassy, with the stubble on it, supposing that I should destroy the grass, rot the stubble, and fertilize the soil by improving its tilth. In the spring, when the beds were hauled down, the grass was certainly injured, and the soil was loosened, but the stubble was not rotted as I expected, and after planting and flowing, a quantity of trash was left on the land. Now, this trash is injurious in more ways than one. It is impossible to remove it all with one or two flowings; much of it remains in and on the land during the whole season, and at each flowing produces fermentation and acidity, thus rendering it necessary to change the water frequently. In addition to this, I believe it be the cause or producer of bugs, which infest light lands so much, and which often compel us to flow at improper seasons and times. In the inland swamp, I understand the case to be different;—but I will not touch upon this subject, as you can obtain better information from those who cultivate them;—but, for the correctness of the views here taken, I appeal to every man who cultivates a mill-pond, on which the stubble has been either left or turned in.

10. *Whether, if so flowed one week, and exposed during the next week, alternately, throughout the winter, the soil would not be sufficiently soft and mellow to admit of trenching and planting between the rows of the preceding year, without the necessity of hoeing the whole field, as usual?*

That our river lands are sufficiently mellow to allow of our trenching and planting between the stubble of the preceding crop, does not admit of doubt, as many very successful planters pursue this method altogether; yet, it must not be concealed that it has its adversaries, who urge that it is the result of necessity with those who do it, and not choice. The gentleman before alluded to (Col. Bryan) is favourable to this mode of culture, and his remarks on other subjects are so judicious, that it is very probable he is right in this. My own impression is, on this, (as on most subjects) that

truth lies in the middle. In stiff clay, it is certainly beneficial to dig and break up the land; it enables the water to percolate more freely the soil, and facilitates the progress of the rice-roots in pursuit of food, and thus enlarges the quantity of grain produced; but in the light, black lands, the water finds its way very rapidly through the soil, and the rice-roots meet with no difficulty in their search after nourishment, and, therefore, require no aid from the hoe. In addition to all this, my conviction is, that the healthy appearance of our rice, and the hardness, which enables it to resist the pestle, will be increased by leaving the land untouched until we plant it, especially if we keep in mind that in this way we approach (as near as loose land can) to the stiff clay of the inland, which produces our best and most beautiful grain.

11. *Whether, by a continuation of this simple process, the produce of the field may not be increased from fifty, to seventy or eighty bushels per acre, with a corresponding improvement in the size, weight, and quality of the grain?*

In order to settle this question, as well as the last, I have this year made an experiment, by planting four adjoining half-acres, each in a different way, and subjecting them all to the same treatment. My impressions, from seeing the rice in the field and in the barn-yard, are, that both the quantity is increased and the quality improved; but as I shall soon ascertain the fact by measurement, I will only detain you to say, that that the result, if desired, shall be given to you at a future period.

12. *Whether more acres may not be planted to the hand, or much time saved for other valuable purposes by some such management?*

It is to me a matter of great doubt, whether the omission of digging will enable us to plant more to the hand than at present. It must be kept in mind, that under no circumstances can we begin to plant before a certain period, (say the 10th of March,) and we must not forget, that early in May the old rice will want the hoe, and must be injured if it is not cleaned. Now, where land is turned, it is presumed to be chopped and ready for planting by the 20th of March, so that it is evident very little more could be planted in one way than the other. The time gained is in the winter, and not in the cropping season; and this time can

be devoted to a variety of improvements on the high land, such as clearing land, making manure, &c., &c., &c., but not to the swamp crop. Planting largely of rice to the hand is objectionable on many accounts; it makes it late before the crop is out of the swamp, and thus renders it more liable to the disasters of the seasons; it is late before the threshing is completed, and thus it is exposed to depredations; it enhances the labour of the negro more than is reasonable, and it detains us too long from the cleaning of ditches and raising of banks. Under no circumstances would we be willing to extend our planting beyond five or six acres to the hand, and even this will (if provisions are planted) entirely prevent our improving the land in any way, besides exposing the crop to birds, at a time when they are most destructive.

13. *Whether the rice is not most apt to grow rank, or tall, and therefore, lodge or fall in new and strong land? May not this be prevented by a proportionate increase in the number of rows in each task? On the principle of planting corn, &c., in rich river bottoms, will not the length of the stalks be reduced by increasing their number in proportion to the strength of the land? Will they not, by being nearer together, afford more support to each other, yield greater crops, and be less subject to accident?*

Roughness of land, the first year that it is planted, precludes a full crop; in the second year, or after it has been cultivated, the rice is most apt to lodge, and so on for several years, it is more and more luxuriant, until the surface (or cream of the land, as it is sometimes called) is worn off. Thick planting will, to a certain extent, prevent this; but a free and judicious use of water in the early stages of the crop, will, I think, prove efficacious. The quantity of seed put into a given space of ground, will diminish the length of the plant, but that it will increase the product of the land is, with me, a matter of great doubt—at least, on the lands I cultivate. Indeed, the very reverse seems to be correct: I have varied from one bushel and a half to two bushels, but had no reason to be satisfied with the thick planting.

I will make one observation more, Mr. Editor, which though not called for by "*an Observer*," it may be well to communicate. Rice which is so luxuriant as to fall down, is generally supposed to have produced a great crop; this,

I know, is the opinion of our drivers, and I understand is assented to by one of our oldest and best planters. If I am correctly informed as to the latter, it originated in the fact that he is a non-resident in the country during the summer season. The fact, I assert on my own observation, is not so; it is the height it attains, and the quantity of blade it produces that causes it to fall; the ears, so far from being long and abundant, are few in number and generally much shorter than those which sustain themselves in the field.

I fear very much, Mr. Editor, that you have been long tired of me and my answers, but, like other old men, when I begin to fight my battles over again, I know not when to stop. If my explanations are satisfactory to "*an Observer*," I shall be gratified; for I am certain, from his mode of asking questions, that, if we knew his pursuits, and could ask information of him, we would be both edified and enlightened.

I remain your well wisher,

Q. E. D.

**ART. XCIV.—*Account of an Agricultural Excursion, undertaken by the EDITOR in the Spring of 1832.***

(Concluded from page 528.)

We have now given an account of the management of the several crops cultivated in these parishes; a few other matters remain for us to notice, and we shall then conclude this year's excursion.

*Clearing Land.*—As soon as the crop is laid by (which usually is by the 1st of August) those planters who intend clearing land, commence operations by cutting all the brush down, if possible, leaving the large trees still to shade the ground. If there be time, it is gone over, and the leaves, trash, and some of the top-soil collected in small beds. As soon in winter, as the hands can be spared from other operations, it is returned to: by some, the large trees are then cut down, rolled into heaps, and

burned ; by others, they are cut down and left to rot where they fall, not being supposed to be injurious to the crops, when the beds run across, and care is taken that the trees are felled in one direction and the beds made to run at right angles with them. Others merely ring the trees and suffer them thus to remain until they decay. The trees being disposed of, the next operation, by some, is to "track out" the field, that is, the space to be planted is dug deep by the hoe, in rows, at the distance at which the crop is to be planted. Some form on these, small beds ; whilst others plant the crop (especially if of corn) in these dug spaces. The intervals, in either case, are not touched until the first working, when the ground is boken up, the large roots removed, and the smaller cut into pieces and left. During the several workings, as much earth as possible is taken out of the alleys and drawn to the plants.

By some, the ground is bedded early in winter, so that the leaves and trash may rot ; and in the spring, these beds are reversed, and formed where the alleys were—the large roots only are grubbed. The crop usually planted the first year is cotton, but it is seldom that it yields any thing of consequence until the second year, when the best is obtained, and the productiveness continues for several years. Peas always do well on new ground. Corn is seldom planted the first year, on account of its precariousness, rarely yielding more than seven or eight bushels per acre.

*Manures.*—We were highly gratified in discovering the interest which is taken by the planters generally, in the subject of manures. At one time, if a planter could get enough to manure a portion of his corn crop, he thought he did well—as to manuring his cotton, it was out of the question ; and there are some who are now zealously engaged in the system of manuring, who at one time absolutely ridiculed the idea of a planter ever having as much manure as would enable him to apply any to his cotton crop. Now, great attention is paid to this subject, and it has become one of considerable importance. We witnessed, with much pleasure, the preparations made on several plantations for collecting and making manure. In one pen, the pine-straw was at least three feet deep, and they were still engaged in hauling in more. The cattle had not been in it long, and this depth would decrease as it became more trampled.

The better to secure all the advantages to be derived from penning cattle, Dr. H. Ravenell has recently erected an extensive range of sheds for his cattle. The space enclosed by these sheds and pens, is a square half acre; the principal range is on the north side, 150 feet long and 16 feet wide, boarded on the north side, and shingled; two wings project from this, one on the western side, 40 feet long, and the other on the eastern, 80 feet in length—these both face inwards and are boarded at the backs. The pen is made by large posts sunk into the ground, with oak-rails nailed on, and the whole capped by a large piece fixed to the posts with mortices and tenons. It is divided into three divisions—one for oxen, one for milch-cows, and the other for dry-cattle. This pen is used only during the winter, and the cattle are here regularly fed at night on cotton-seed, corn-husks, &c.

But, although much attention is now paid to manuring, it is far from being carried on as systematically, or to as great an extent as it might be. The fact is, that even those who are most engaged, do not employ all the means within their power, nor employ all of the substances which might be collected and advantageously used. They all depend too much on the cow-pen and stable; and we have heard it seriously urged, that the planters in that neighbourhood never could manure all of their cotton crops, because cattle enough for this purpose could not be supported in the several ranges. This idea, we fear, has done much to retard the extension of this system, and consequently been prejudicial. It is still fresh in the memory of most of the planters, when no part of the cotton crop was manured at all, all being retained for the provision crop. Now, numbers manure, not only all of their provision crops, but even a large portion of the cotton—some as far as half. The knowledge of this fact should serve as an incentive to use greater exertions. We have, however, little fear on the subject; the importance of manuring is duly estimated by most of the planters. A commencement has been made;—thus far the attempt has been eminently successful; and we, therefore, cannot fear that, in such an intelligent community, it will either languish or be discontinued.

Before quitting this subject, we will make one suggestion; it is this—that all the materials fit for manure, and within the reach of the planters generally, are either not used for that purpose, or in much less quantities than they might be.

The pens and stables are chiefly depended on, and each planter estimates his capability of manuring by the number of stock his range can support. Now we request the serious attention of the planter to this subject—let him consider well, and we are certain he will discover that he has the power of increasing the quantity of his manures greatly. Some who have but few cattle, do not employ any hands steadily at carting in trash to the pens, giving, as a reason, that the quantity would be too great for the number of animals penned, and consequently it would be weak, and when used, be of little service. We would suggest to those thus situated, that they continue to employ one cart, and two hands, steadily, and instead of hauling in pine-straw and leaves every day, they should bring in, only enough to form a thick layer, and then cart in on this, swamp-mud, mud from the ponds, and when these cannot be had, top-soil from the woodland, and when a layer of this has been formed, then place on it another of pine-straw, &c., thus making alternate layers, keeping the cattle penned on it nightly. In this way a large addition would be made to the usual quantity, whilst the quality would not be at all inferior.

In addition to this, each planter should have a small stercorary, or receptacle, made near the offices, into which all the soap-suds, trash, and offals, which are gathered around these may be placed, and not left to offend the eye and manure noxious weeds;—to this, the sweepings of the hen-house could be added, and earth be thrown in to absorb the surplus moisture, as it became necessary.

In manuring the crops generally, a system should be entered into, and this persevered in as far as practicable, due regard being had to the crops and the soil to be manured.

*Negroes.*—The work assigned to the negroes here does not differ from that in common practice in the lower country. They are well-fed, well-clothed, and well-lodged.—The negro-houses, on all of the plantations I noticed, are frame buildings, weather-boarded, elevated from the ground a foot or two, and having brick or clay chimneys; they are generally large and comfortable. The negroes are employed after the crops are laid by (about the 1st of August) in making fences, clearing land, ditching, gathering and hauling in manure, and spinning and weaving. In some one of these occupations they are engaged until

the crops are ready for harvesting. There is a practice among some of the planters here, which we cannot but recommend to the consideration of the community generally, in consequence of the favourable reports we have heard of it. It is to place all of the little negroes on the plantation under the charge of some elderly person, who takes care of them whilst their parents are at work, and has their food prepared and given regularly to them. At the sounding of a horn, all are brought up (on some plantations, three times each day) and being properly arranged, as much food is placed before them as they can devour. The place fixed on for feeding them is usually near to some of the offices, and sufficiently near for the master to inspect them, and ascertain that all is conducted properly. The principal advantages are, that each gets as much as he can eat of wholesome and well-cooked food, which is not always the case when it is committed to their parents; the children are more healthy, and they improve much faster.

*Miscellaneous Remarks.*—Most of the planters, in addition to their other stock, keep a flock of sheep; and many now make their own negro-clothing and blanketing. Dr. H. Ravenell made, the last year, one thousand yards of cloth, for the winter clothing of his negroes. No cloth is wove for summer, we believe, by any, as it is found to be cheaper at present to purchase than to weave it at home.

On visiting these parishes, one will be struck with the general appearance of neatness and comfort which is every where seen. This is apparent not only in the mansions of the planters, which are large, and many of them elegant, but also in the excellency of the offices and outbuildings, as well as in the negro-houses. Nor will the visitor be disappointed, when he partakes of the hospitality of the inhabitants. Living on the productions of their plantations, and raising on them almost every thing absolutely necessary, they are indebted to the city only for such luxuries as our climate does not produce, whilst they enjoy in abundance all the substantial fare usually furnished by a Southern plantation.

Most of the planters of Upper and Middle St. John's, and St. Stephen's, reside in Pineville during the summer. This village is remarkably healthy, and so situated, that it is convenient for most of them to visit their plantations every day, should they deem it requisite; this is, however, rarely the case, and the balance of the time is spent by

many in visiting the crops of their neighbours. By common consent they have adopted an excellent arrangement among themselves. It is to form parties and ride over all the plantations within their reach. These are termed "visiting committees;" are formed promiscuously of any disposed to ride, and often inspect plantations at a considerable distance from the village; they never wait for an invitation, but whenever they hear of any one having either a very excellent crop, or is very much in grass, they are sure to pay a visit; and, as these are always unexpected both by the planter and overseer, they have a most beneficial effect, especially on the latter, who usually hears a great deal of criticism on all his operations, which, coming often from experienced planters, serves to show him his errors, and instruct him in his future operations.

Pineville has long been celebrated as a healthy summer residence, and as we wish to preserve a record of things as they are at present among us, we have obtained from Dr. H. Ravenell an account of its origin, and present condition, which we here give.

"Our village is situated in St. Stephen's Parish, Charles-ton District, about fifty miles to the north of Charleston, and four miles south of Santee River. Seven families from the parishes of St. Stephen's and St. John's, settled themselves here in the summer of 1794, consisting of thirty-three persons—fourteen adults and nineteen children. Of these thirty-three persons, eighteen are now alive, (thirty-years after its settlement); and from those thirty-three persons there are, now living, one hundred and eight descendants, most of whom reside, during the summer months, in Pineville.

"In 1798 it had increased to fifty-four inhabitants, of whom twenty-seven are now alive; a few, however, of the surviving twenty-seven are not inhabitants of the village. Pineville has now about forty-five houses, and two hundred and fifty-four inhabitants, of whom one hundred and five are below fifteen years of age. A statistical representation appears to exhibit the following particulars. There is an academy, incorporated in 1806, at which there are from forty to fifty scholars, and from which upwards of thirty students have entered the different colleges in the United States since its establishment. There is an Episcopal Church, built and consecrated in 1811. There is a post-office, established in 1820, producing, for the

'the last five years, a net annual revenue to the Government of about \$300. There are received, quarterly, at the post-office, for the inhabitants of the village, near six thousand newspapers, and monthly, about forty periodical journals; besides a considerable number for other persons, not residents of the village. There are kept by the villagers forty-eight four-wheel carriages, and about fifty two-wheel carriages. There is a store, with a revolving capital of upwards of \$35,000, doing an excellent business. There are two resident physicians in the village, and three or four others who remove here in summer, but are all compelled to depend upon other resources for their support. This argues well for the health of our village."

We have now brought the account of our excursion to a conclusion, and will here take leave of the subject for the present. On overlooking our note-book, we find we have omitted many things which we wished to have noticed, but it appears to us that we have already extended this article to an unreasonable length, and we will not tire the patience of our readers by further extracts. We have endeavoured to give a faithful account of what we saw and heard, and have purposely avoided (except in a few cases) expressing any opinion relative to the courses of culture pursued in these parishes, nor shall we deviate from this plan, in any of our future excursions. We wish not to set up our opinion as the rule by which others are to be judged, we will endeavour to give faithful accounts, and leave it to our readers to form opinions for themselves. We believe more good will be effected by pursuing this course, and giving them an opportunity of knowing the practices of different sections of country, than by entering into any discussion of their merits and demerits—whatever we find excellent we will notice, that others may follow it, that which we may deem radically wrong, we will pass by in silence. No good will be obtained by exposing to the public the bad management of any one, whilst at the same time, unpleasant feelings, will certainly be generated.

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ERRATUM.—In the account of Major Porcher's mode of cultivating potatoes, page 526, for "three quarters of a bushel PER ACRE," read PER ROW.

**PART II.****SELECTIONS.****ART. LXXV.—*Management of Green-house Plants.***

[FROM BRIDGMAN'S YOUNG GARDENER'S ASSISTANT, 2D ED.]

Having already prepared sufficient matter for a book of double the size of the former edition, I am compelled to be brief in my observations on such ornamental plants as are generally cultivated in hot and green-houses. This description of plants embraces those which are collected from various climates, and thrive best in a temperature and soil similar to that in which nature first produced them: hence they who propagate exotic plants, must provide suitable composts, and also separate departments, where the different degrees of heat may be kept up, according to their nature and description. Some of these are raised from seed sown in the spring, others by layers, suckers, and offsets detatched from the old plants, and many by slips and cuttings planted at different seasons of the year, according to the varied natures and state of the plants. Many kinds require the aid of glass coverings and bottom heat, created by fresh horse dung, tan, &c.

Were I to attempt to give directions for the propagation of all the varieties of useful and ornamental exotic plants cultivated in various parts of the country, it would require an entire volume. The catalogue of green-house plants alone kept by the enterprising proprietor of the Linnaean Botanic Garden at Flushing, occupies fifty pages of close matter; it would, therefore, be impossible to do justice to the subject, without dividing upwards of two thousand varieties of plants into classes, according to their varied natures, and treating of them under distinct heads; I shall, therefore, not attempt, in this addition, to write largely on the subject.

In order to render this little work useful to those who may wish to avail themselves of the pleasure of nursing some of those beauties of nature in their own dwelling houses, during the most chilling days of our severe winters, and to afford amusement to the ladies, at a season when our gardens are deprived of their loveliest charms, I shall discuss some essential points connected

with the management of green-house plants, in as explicit a manner as possible.

The following hints were selected for the first edition of this work, and appear to the author to embrace the most important points connected with the care of plants in the winter season.

The generality of those denominated green-house plants, and which are kept in rooms, should be placed where they can have the light of the sun, without being exposed to frost. Air, heat, and moisture are essential to the growth of plants, but these should be given in due proportions, according to circumstances. In frosty weather they should be kept from the external air, and watered very sparingly. When water is necessary, it should be applied in the morning of a mild sunny day. The plants should be kept free from decayed leaves, and the earth at the tops of the pots should be sometimes loosened to a moderate depth, and replenished with a portion of fresh compost. Plants kept in private houses are often killed with kindness. The temperature of a room in the winter need not be more than ten degrees above freezing. If plants are healthy, they may be kept so by attention to the preceding hints, unhealthiness generally arises from their being subjected to the extremes of heat, cold, or moisture, or from total neglect.

In order that the ideas above advanced may be duly considered, it may be useful to indulge in a more minute description of the nature of plants, and to show in what manner the elements operate upon them. It is an acknowledged fact, that the roots of plants require moisture, and therefore penetrate the earth in search of it, and that the plants themselves are greatly nourished by air, and spread their branches and leaves to catch as much as possible its enlivening influence. Light also is so far essential, that there can be no colour without it; witness the blanching of celery and endive, where the parts deprived of light become white; place a plant in almost any situation, it will invariably show a tendency to turn to the light; the sun-flower is a striking example of this singular fact. As the leaves supply the plant with air, and the fibres of the roots supply it with nourishment, to strip off the leaves, or destroy the fibres, is to deprive it of part of its means of support. Having shown that air and water are essential to vegetation, and light to its colour, experience shows us that heat, in a greater or less degree, is not less necessary to the growth of plants; it is therefore requisite, that in taking plants into our rooms, we should attend to these particulars.

The internal structure of plants is composed of minute and imperceptible pores, which serve the same important purpose in the vegetable as veins in the animal system; they convey the circulation of the sap in the former, as the veins do that of the blood in the latter; but it is by no means settled as yet by phy-

siologists how the food of plants is taken up into the system and converted into their constituent parts.

From the foregoing considerations and facts, it is evident, that, as air, heat, and moisture are each essential to vegetation, that water should only be given in proportion as heat and air are attainable. In the summer season green-house plants may be exposed to the open air, from the early part of May, until the end of September, by being placed on the ledges of windows, or on a stand erected for the purpose, or in the absence of a nursery bed of flowering plants, they may be introduced into the regular flower beds, to supply the place of such plants as may wither and die in the course of the summer, by being turned out of the pots and planted, or plunged in the earth with the pots.

In the heat of the summer season, plants generally require water every evening, and in the absence of dews, the earth about their roots may sometimes need a little early in the morning; but experience shows, that the roots of plants more frequently get injured from being soddened in water, than from being kept moderately dry. Having before intimated that exotic plants will generally thrive best in a temperature and soil similar to that in which nature first produced them, it may be necessary to remind the reader, that we have the means of attaining suitable composts from our own soils, and from sand, decayed leaves, rotten dung, and various kinds of peat, bog, and rock mould; these ingredients being judiciously mixed and prepared, may be suited to all the various kinds of plants, and should be used as occasion requires. As the roots of plants make considerable growth in the course of a summer, it will be necessary to examine them by turning them out of the pots, this may be done early in September, at which time all matted and decayed roots should be pared off, and the plants shifted into larger pots which being filled with suitable compost, and watered, will be ready to be removed into the house on the approach of cold nights, which is generally early in October.

Green-house plants require an annual pruning, and should be occasionally headed down, in order that their size and appearance may be improved; the best time for improving this is soon after they have done flowering, and while they are in a growing state. Having endeavoured to furnish my readers with the artificial means of preserving tender plants in a climate foreign to that which nature has provided for them: I shall call their attention to another class of plants well calculated for the windows of a house.

I allude to the many beautiful varieties of the Chinese Chrysanthemum; these are frequently cultivated in pots, and may be taken from the ground and put into pots even when in full flower without injury, and when the bloom is over, returned to the gar-

den ; and in the spring following, they will throw up an abundance of suckers.

The following list taken from Mr. Prince's catalogue, consists of some of the best varieties of the Chrysanthemum, and are entitled to a place in every flower garden. In October and November, when the waning year has left our gardens comparatively cheerless, these with their various colours, deck them out in gaiety, and prolong the semblance of summer. They are perfectly hardy and will brave our severest winters.

#### *Chrysanthemum sinense.*

- |   |                                    |
|---|------------------------------------|
| 1 White quilled.  | 25 Curled lilac.                   |
| 2 Pale buff, or orange.   | 26 Quilled light purple.           |
| 3 Changeable, red and orange flower on the same plant.  | 27 Expanded do. do.                |
| 4 Purple.   | 28 Quilled yellow.                 |
| 5 Lilac quilled.  | 29 Double Indian yellow, superb.   |
| 6 Rose coloured, or plank.  | 30 Double Indian white, superb.    |
| 7 Lilac and white, changeable; the flowers vary to lilac, to white with a purple centre, and to pure white. | 31 Brown purple.                   |
| 8 Dark crimson, or Spanish brown.   | 32 Earby blush.                    |
| 9 Straw coloured quilled.   | 33 Golden lotus.                   |
| 10 Golden yellow.   | 34 Quilled purple.                 |
| 11 Tasseled white.  | 35 Starry purple.                  |
| 12 Superb do.   | 36 Park's small yellow, beautiful. |
| 13 Semi-double quilled, do.   | 37 Quilled salmon.                 |
| 14 Papēr, do.   | 38 Semi-double quilled pale range. |
| 15 Quilled flame yellow.  | 39 Two coloured red.               |
| 16 Sulphur, do.   | 40 Curled buff, or salmon.         |
| 17 Superb clustered do.   | 41 Large lilac.                    |
| 18 Small, do.   | 42 Late pale purple.               |
| 19 Single flame, do.  | 43 Two coloured incurved.          |
| 20 Quilled pink.  | 44 Blush ranunculus.               |
| 21 Semi-double quilled do.  | 45 Late quilled purple.            |
| 22 Quilled orange.  | 46 Tasseled lilac.                 |
| 23 Semi-double quilled do.  | 47 Tasseled yellow.                |
| 24 Early crimson.   | 48 Yellow waratah.                 |
|   | 49 Pale lilac.                     |
|   | 50 Large buff, superb.             |
|   | 51 Barclay's.                      |
|   | 52 Aiton's.                        |
|   | 53 Sabine's.                       |

Chrysanthemums may be propagated from seed and cuttings, and each plant will produce several suckers, which may be separated every spring; as the flowers are liable to be injured by the rain in autumn, it is advisable to take up a few plants and place them in a light room or green-house, which will preserve them for some time.

Many people keep their late blooming plants in the house in the winter; this is a bad practice, as the heat and want of air will exhaust or destroy the plants altogether. If the flowers fade before hard frost prevails, it is best either to plunge the pots into the ground with the plants, or turn them out of the pots, and plant them with the balls of earth entire into the borders of the

flower garden. Early in May, such as may be intended for potting the ensuing season, should be divided at the roots, if not potted, and planted, each kind separate. One single stem is sufficient for a moderate sized pot, if the object be to have bushy plants; but if showy plants are desired, one of each of the varied colours may be selected for each pot, which should be sufficiently capacious to hold them without crowding them, as this will cause the plants to grow weak and slender. If this happens early in the summer, a stocky growth may be promoted by clipping the tops, and they will bloom in great perfection at the usual season.

**ART. LXXVI.—*On the Management of Pear and Apple Trees, and keeping Fruit in winter.***

[FROM THE TRANSACTIONS OF THE HORTICULTURAL SOCIETY OF DURHAM, &c.]

In winter pruning I cut all the long weak spurs, leaving the strong faithful buds in a regular manner. When my trees are in flower in the spring, and a frosty night happens, I wash the blow next morning, before sun-rise, with cold water, throwing the water gently on the flower with the squirt, which washes the frost rind off, and keeps the flower from being damaged.

When the fruit gets the size of a pigeon's egg, I thin them to two on each spur; by doing so I seldom have any that drop off, and those left on get larger. The superabundant wood that the trees make in summer, I shorten back to three eyes in the end of June, by which means the sap flows to the fruit and spurs for the next season; when these three eyes have grown a few joints, I stop them again, and when done growing I cut them close out, that the spurs for next season may get the free sun and air. I see some who let this superabundant wood grow on their trees until August, and the sap of the tree flowing to these useless shoots, causes the fruit to be small, and weakens the buds for next season.

When I observe the fruit on the trees to change from the dark green to a clear blush, I take them carefully from the tree, and lay a bass mat on the ground, and spread the fruit thereon. I let them remain in the sun about three days, which takes that moisture out of them that causes them to sweat, and they will

keep longer when treated in this manner than when taken from the tree and immediately stored. When stored I find straw the best thing to lay them in.

WM. GRAY.

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*ART. LXXVII.—Rearing of Poultry in Mexico.*

[FROM THE NEW-YORK FARMER.]

“September, 1832.

Sir,—I cannot embark for Campeachy without relieving myself by telling you not a cock and bull, but a cock and chicken story, which may be of service to those farmers who supply our markets with poultry.

The fondness of Spaniards for eggs and chickens appears to be inherited to the full extent by their American descendants, as at every Indian hut which I have stopped at in Mexico, I could get one or the other in default of every thing else in the eating line. It is true they are not very scrupulous about the number of feathers which covers the *pollito*, nor the days it has been free from the shell, but then you know you can eat the more of them, and pay accordingly. But to return to my story. During the rainy season, the rivers of the State of Tabasco overflow the banks, and the little eminences become so many temporary islands, to which all terrestrial animals retreat for shelter. On these little mounds, too, the inhabitants place their huts, and it is fine sport to go hunting in a canoe from one inlet to another all over the country. Monkeys, parrots, peccaries, snakes, in short, all animals of a tropical climate, may be found in the same congregation.

One afternoon, in the month of October, 1828, in company with the Vice-Governor of the State, I entered one of those huts aforesaid, to take some refreshments and rest, when I observed before the door a large cock with three or four dozen of chickens around him, engaged in all the occupations usually appertaining to the hen, and apparently very proud of his office. Neither man, woman, child, pig, nor hen would he suffer to molest his little ones in the slightest degree, and he would occasionally cock his eye up towards the birds of prey in the air with a menacing gesture, as much as to say, “and you too had better keep at a respectful distance from my spurs.” The follow-

ing was the account of this phenomenon given me by my companion, Col. Estrada.

"The cock is chosen to hatch the eggs, on account of his superior size, and to take care of the chickens, on account of his superior strength, while the hen is thus left free to continue filling other nests. To qualify him to take her place, he is first rendered intoxicated by swinging him over and over in a hammock, under which tobacco is burnt to keep him enveloped in the smoke. As soon as he becomes senseless and motionless, the feathers are stripped from his broad breast, and he is placed in a large nest with as many eggs in it as his body can cover, in the position taken by the hen herself while hatching. When he recovers from the stupor, the pressure of the warm eggs against his naked breast, seems to occasion an agreeable sensation, which detains him on the nest the full period of incubation. Why he continues his care to the chickens after they escape from the shell, is best known to himself—but you see the fact before you, and the practice of thus substituting the male for the female is general in this country."

Now, Mr. Editor, all I ask of you and your readers is to *try* before you *deny* the truth of the story.

HENRY PERRINE.

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#### ART. LXXVIII.—*On Training Oxen.*

[FROM THE AMERICAN FARMER.]

MR. SMITH.—*Sir,*—In the 1st Number of the 14th volume of the American Farmer, I see some remarks on the manner of "training cattle," and some inquiries respecting the best mode of doing it. I am pleased with your correspondent's ideas on this subject. I have recently learned a mode of breaking steers to the yoke, which seems to me so remarkably reasonable, so humane, and so well calculated to aid in effecting the object, that I take the liberty of offering it to you, that if you think it of sufficient interest you may communicate it. I would remark that the training of steers to the yoke, is not the work of an hour or a day. Before they work well, work must be made something of a habit with them. I think, however, they are the most docile of working animals, and if our efforts to subject them are directed by reason, they are more cer-

tainly successful, than with the horse or the mule; and further, that they are more perfectly subjected to our control, and manifest more intelligence in understanding our commands, than even the horse. This control over them is not obtained by cruelty or abuse, by whipping and beating, but by kind and generous treatment. The mode of breaking alluded to, is as follows: On a stump or substantial post, fasten a pole with a pin, in such manner the pole will turn round as on a pivot. The pole may be some twenty feet long, and ought to be from the ground the height of the yoke when on the steer—fix the end of the pole similar to the end of a yoke, and then yoke the steer in it. By reversing the position of the steers, one may be yoked at each end of the pole at the same time. They will soon get so as to travel round the post or stump together. If it is feared the steer may injure himself by twisting round the end of the pole, this may easily be prevented, by mortising in a small bar at the end of the pole. After they are yoked in the pole let them remain a day or two, troubling them no farther than to feed them. After they have ceased to make efforts to extricate themselves from the pole, and will travel round quietly with it, yoke them together, and there will be no difficulty in using them behind a well-trained yoke of oxen. While yoked to the pole it is well to familiarize them, by rubbing and handling them, that they may learn to be approached without the fear of being injured.

In breaking cattle to the yoke, the first requisite is, to impress them with the conviction, that they are perfectly subjected to our control, and that all their efforts to extricate themselves from it are unavailing. What is to be avoided particularly, is, to prevent them from learning to "turn the yoke," from becoming sullen, and laying down, and from the habit of running away. Now it does appear to me, that the above mode, of first handling them, is eminently calculated to prevent them from acquiring either of the above vices. It is further recommended in this, that they are habituated to confinement, without the possibility of injuring themselves, and all the necessity of whipping and beating them, in the first handling, is entirely superseded. One thing to be especially avoided with young cattle, is, not upon any consideration to overtak them. Should the above be the means of preventing a single scene of inhuman beating of young steers, for turning themselves in the yoke, or of beating them when they get sullen and lie down, or of twisting their tails to make them get up, it will be ample compensation for the trouble of one who subscribes himself.

#### A FRIEND AND ADMIRER OF GOOD OXEN.

I would request any one who makes a fair test of the above mode, to communicate the result. A very great aid in breaking

young steers, is, in the first instance, simply to catch and tie them to a tree, and let them remain tied for a day or two. By either of the above modes, and judicious handling after being taken in hand, so far as my observation goes, steers that have been little handled and are comparatively wild, are broke sooner, and with greater facility than those which have been petted and are tame.

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**ART. LXXIX.—*On the Potato ; by T. A. Knight.***

[FROM THE TRANSACTIONS OF THE LONDON HORTICULTURAL SOCIETY.]

Mr. Knight is convinced by the evidence of experiments, "that the potato plant, under proper management, is capable of causing to be brought to market a much greater weight of vegetable food, from any given extent of ground, than any other plant which we possess." There is no crop, he says, "so certain as that of potatoes: and it has the advantage of being generally most abundant, when the crops of wheat are defective; that is, in wet seasons." The following observations are extremely interesting:—

"I think I shall be able to adduce some strong facts in support of my opinion, that by a greatly extended culture of the potato for the purpose of supplying the markets with vegetable food, a more abundant and more wholesome supply of food for the use of the labouring classes of society may be obtained, than wheat can ever afford, and, I believe, of a more palatable kind to the greater number of persons. I can just recollect the time when the potato was unknown to the peasantry of Herefordshire, whose gardens were then almost exclusively occupied by different varieties of the cabbage. Their food at that period chiefly consisted of bread and cheese, with the produce of their gardens; and tea was unknown to them. About sixty-six years ago, before the potato was introduced into their gardens, agues had been so extremely prevalent, that the periods in which they, or their families, had been afflicted with that disorder, were the eras to which I usually heard them refer in speaking of past events; and I recollect being cautioned by them frequently not to stand exposed to the sun in May, lest I should get an ague. The potato was then cultivated in small quantities in the gardens

of gentlemen, but it was not thought to afford wholesome nutriment, and was supposed by many to possess deleterious qualities. The prejudice of all parties, however, disappeared so rapidly, that within ten years the potato had almost wholly driven the cabbage from the garden of the cottagers. Within the same period, ague, the previously prevalent disease of the country, disappeared; and no other species of disease became prevalent. I adduce this fact, as evidence only, that the introduction of the potato was not injurious to the health of the peasantry at that period; but whether its production was, or was not, instrumental in causing the disappearance of ague, I will not venture to give an opinion. I am, however, confident, that neither draining the soil, (for that was not done) nor any change in the general habits of the peasantry, had taken place, to which their improved health could be attributed. Bread is well known to constitute the chief food of the French peasantry. They are a very temperate race of men: and they possess the advantages of a very fine and dry climate. Yet the duration of life amongst them is very short, scarcely exceeding two-thirds of the average duration of life in England; and in some districts much less. Dr. Hawkins, in his *Medical Statistics*, states, upon the authority of M. Villerme that, in the department of Indre, "one-fourth of the children born, die within the first year, and half between fifteen and twenty: and that three-fourths are dead within the space of fifty years. Having inquired of a very eminent French physiologist, M. Dutrochet, who is resident in the department of Indre, the cause of this extraordinary mortality, he stated it to be their food, which consisted chiefly of bread; and of which he calculated every adult peasant to eat two pounds a-day. And he added, without having received any leading question from me, or in any degree knowing my opinion upon the subject, that if the peasantry of his country would substitute (which they could do) a small quantity of animal food, with potatoes, instead of so much bread, they would live much longer, and with much better health. I am inclined to pay much deference to M. Dutrochet's opinion; for he combines the advantages of a regular medical education with great acuteness of mind, and I believe him to be as well acquainted with the general laws of organic life as any person living: and I think his opinion derives some support, from the well known fact, that the duration of human life has been much greater in England during the last sixty years, than in the preceding period of the same duration. Bread made of wheat, when taken in large quantities, has probably, had more than any other article of food in use in this country, the effect of overloading the alimentary canal; and the general practice of the French physicians points out the prevalence of diseases thence arising amongst their patients. I do not, however, think, or mean to say, that potatoes alone are proper food

for any human being : but I feel confident, that four ounces of meat, with as large a quantity of good potatoes as would wholly take away the sensation of hunger, would afford, during twenty-four hours, more efficient nutriment than could be derived from bread in any quantity, and might be obtained at much less expense."

Mr. Knight then proceeds to give an account of the result of his experiments in raising new varieties of potato from seed, and in growing crops in different soils and situations. He raises new varieties from seeds chiefly by the aid of artificial heat, by which means he obtains, within the year, a specimen of the produce.

" In raising varieties of the potato from seeds, it is always expedient to use artificial heat. I have trained up a young seedling plant in a somewhat shaded situation in the stove, till it has been four feet and five feet high, and then removed it to the open ground in the beginning of May, covering its stem, during almost its whole length, lightly with mould ; and by such means I have obtained, within the first year, nearly a peck of potatoes from a single plant. But I usually sow the seeds in a hot-bed early in March, and, after having given them one transplantation in the hot-bed, I have gradually exposed them to the open air, and planted them out in the middle of May ; and, by immersing their stems rather deeply into the ground, I have within the same season usually seen each variety in such a state of maturity, as has enabled me to judge, with a good deal of accuracy, respecting its future merits. I stated in a former communication, two years ago, that I had obtained from a small plantation of the early ash-leaved kidney potato, a produce equivalent to that of six hundred and sixty-five bushels, of eighty pounds each per acre ; and my crop of that variety, in the present year, was to a small extent greater. By a mistake of my workman, I was prevented ascertaining, with accuracy, the produce, per acre, of a plantation of Lankman's potato : but one of my friends having made a plantation of that variety, precisely in conformity with the instructions given in my former communication to this Society, I requested that he would send me an accurate account of the produce ; which I have reason to believe he did, for its amount very nearly agreed with my calculation upon viewing the growing crop about six weeks before it was collected. The situation in which this crop grew was high and cold, and the ground was not rich ; but the part where the potatoes to be weighed were selected was perfectly dry, and afforded a much better crop than the remainder of the field, which was planted with several different varieties. I calculated the produce of the selected part to be six hundred bushels per acre ; and the report I received, and which I believe to have been perfectly accurate, stated it to be six hundred and twenty-

eight. If this produce be eaten by hogs, or cows, or sheep, (for all are equally fond of potatoes) I entertain no doubt whatever that it will afford twenty times as much animal food as the same extent of the same ground would have yielded in permanent pasture; and I am perfectly satisfied, upon the evidence of facts, which I have recently ascertained, that if the whole of the manure afforded by the crops of potatoes above mentioned be returned to the field, it will be capable of affording as good, and even a better crop, in the present year, than it did in the last; and that as long a succession of at least equally good crops might be obtained as the cultivator might choose, and with benefit to the soil of the field. Should this conclusion prove correct, a very interesting question arises, viz. whether the spade husbandry might not be introduced upon a few acres of ground surrounding, on all sides, the cottages of day labourers, to and from every part of which the manure and the produce might be conveyed, without the necessity of a horse being ever employed. A single man might easily manage four statute acres thus situated, with the assistance of his family: and if nothing were taken away from the ground, except animal food, I feel confident that the ground might be made to become gradually more and more productive, with great benefit to the possessor of the soil, and to the labouring classes, wherever the supply is found to exceed the demand for labour."

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#### ART. LXXX.—*Fall Dressing Asparagus.*

[FROM WILSON'S ECONOMY.]

About the beginning of November, when the tops become yellow, cut the whole off close to the ground, and deposit them in some convenient place to rot; hoe up and rake off from the surface of the beds and alleys all weeds, and turn them in with the tops, to rot also. Every other year at least, the beds would be the better of manure, and this is a good time to apply it. Cover the surface of your beds, therefore, one or two inches with well rotted short manure, or other compost, and point the whole lightly over the surface an inch or two deep. The alleys may be covered deeper with coarser manure—and the management of them is an essential point in the culture of asparagus, for from them the beds are continually to receive additional renovation.

Therefore, after they are all well covered with good strong manure, they should be marked out by the line and spade, eighteen inches for the outside ones, and two feet for the others. Then at the end of one of the two outside alleys, its ends to a length of two feet, and a depth of two spades, shoveling and all, must be taken out, and deposited opposite to the end of the two next feet alley. The dung, also, to a distance of other two feet, must be removed to the end of the alley with that first removed—then the upper spit turned into the bottom of the first opening, and the fine shoveling below it thrown upon one half of the bed, to a thickness of one or two inches. On the top of the next spit will be the layer of dung deposited on the first trenching; and that, with the bottom spit, must be turned upon the top of the first opening. The next two feet of dung must be turned into the bottom of the second opening, as also the upper spade full of earth; the shoveling upon the top of one half of the bed, and so on, to the end. The next alley must be opened at the end where the first alley is ended, and its opening closes it; and is itself closed at the other end by the opening of the first. The shoveling between the first and lower spit of this, and all the two feet alleys must be spread alternately to the right and left, on one half of each bed, and their openings and closings effected in the same manner. The beds will then be in good order for winter. Yet if those who live near the shore, could add an additional covering over all, at least the beds, of rock or sea weeds, to a depth of several inches, it would be of much advantage to the plants. Any kind of long litter would be good; still the beds will sustain no injury, although it should be inconvenient to apply either of the two last; provided the first operations are duly performed. And in whatever year the first operations are dispensed with, the second, of covering well, must not on any account be omitted.

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**ART. LXXXI.—*Experiments with Chinese Silkworms.***

[FROM THE AMERICAN FARMER.]

"Philadelphia, July 20, 1832.

**MR. SMITH.—Sir,**—Having seen an abstract published in the National Gazette, in the spring of 1828, of an experiment by Professor Giovanni Lavini, with Chinese Silkworms, the result

of which induced me to believe that they might be a valuable acquisition to the United States, I resolved to send for some of their eggs, that I might put their merits to the test. The object of my wishes having been stated to a mercantile friend, he kindly sent my note to his correspondent in Canton, who promptly attended to it, and in the month of October, 1828, forwarded me several sheets of the desired eggs variously put up, nearly all of which arrived safely on the 4th of March, 1829. The eggs were said to be of the silkworms which produce the stuff called *Conglee Canton No. 1 Silk*. They were hatched for me by Messrs. Terhevens of Philadelphia county, experienced silk culturists, with the utmost care, in a room containing their own stock, and the temperature of which was regulated by a thermometer day and night, so as to secure their gradual and simultaneous maturation, a point by the way, of great importance, and one of which we can never be certain of attaining, if we depend upon the heat of the atmosphere which often varies 30 degrees in the course of twenty-four hours. They were put to hatch on the 20th of April, and they all came out on the 27th and 28th of that month, just as the white mulberry leaves were beginning to burst. On the 18th of May, Messrs. T. brought them to the house I had prepared in the vicinity of Philadelphia for their reception, and they were placed on the shelves of the frames they were destined to occupy. One of these frames was ten feet, another fifteen feet long, and both four feet wide: a third frame consisted of seven shelves, each three feet four inches square, and when the worms were full grown, they filled the whole of both sets of frames, the distance between the worms not being more than two inches. It might form a problem to calculate their number. When full grown they were about one inch, and one inch and a quarter long, and of the diameter of a stout quill. During eighteen days of the time of their feeding, the nights and mornings were so cold as to require the use of artificial heat, and during the whole of two cold rainy days, a little fire was kept up in a sheet iron stove, to prevent the worms being chilled, the checking of their feeding, and consequent useless increase of the duration of their existence. The worms had thus every possible chance of success. They commenced the formation of their cocoons on the 1st of June, and by the 8th, all who spun their silky tombs, had finished them. The colour of these was brimstone, and their size so small that twelve hundred were required to weigh a pound of twelve ounces. The worms gave infinitely more trouble in attending them than the European species, for when they had attained their full maturity, and shewed by their transparent yellow colour that they had filled their silk vessels with the material for the formation of that article, instead of mounting the branches carefully placed along the frames, vast numbers laid down and evinced no dis-

position to spin. Being determined to go through with the experiments, I hired little boys to pick them up, and place them on the bushes, and thus induced many thousands to form cocoons, which, like as many more, would otherwise have died. The size of the cocoons was moreover very diminutive, as may be judged, when it is known that instead of 1200 being required to weigh a pound, 150, 208, 200, 340, 267, 271, 195, 306, 490, to 600 cocoons of European and American fed worms balanced that weight.\* The Chinese cocoons were further objectionable in being very deficient in compactness, and when an attempt to wind them off was made, the fibres broke after every third or fourth turn of the reel, thus causing a loss of time, much trouble, and disappointment to the operator, which are incompatible with either profit or pleasure. The trifling wages paid to a Chinese workman, if employed by the day, or contentment on the part of the operative with a small reward for his labour, may compensate for these defects, but it is clear, that even with the low wages of an European workman, the Chinese worms will never be substituted for the common kinds. The price of free labour, or the value of that of slaves in the United States, are totally incompatible with the culture of these worms.

With the view of ascertaining the result of attention to the Chinese worms, by others, I sent some thousands of the eggs to two experienced silk culturists in the South, on whose attention and accuracy I could depend; and from them I learnt, 1st, that the worm weighed twelve grains and a half, when ready to spin, and 2d, the cocoon nine grains when finished. 3d, that they lived twenty-eight days; 4th, that the moth or butterfly came out in seven days; 5th, that the worm was hatched in seven days after; 6th, that they produced three crops. The first hatching was on the 13th of April; the second, on the 7th of June; the third, on the 17th of July. 7th, a quarter of a pound of the cocoons (1720 grains) yielded three hundred and two grains of silk.

My own stock, but in the hands of the person who had charge of my worms, also produced three crops of cocoons, and the moth from the last, laid eggs, which hatched, but the cold weather, (the man not using artificial heat) prevented the worms from finishing their course. The apparatus for feeding silk-worms, makes all the difference between a labour and an amusement, and I therefore think it useful to state that two of the long frames mentioned above, were filled in with common house laths, or thin pine slats, nailed on: one of them having longer legs than the other, stood upon the frame of the latter. The third apparatus was upon the plan (but larger) of that described by Mr. Swayne in the 7th vol. of the Trans. Society of Arts, Lond.

\* Silk Manual published by Congress, Chap. 13.

and figured in the 5th chapter of the Silk Manual. It answered admirably, but as I had mine very neatly made and filled in by the tasteful basket-workers of Philadelphia county, it was more expensive than the others. It has, however, the merit of holding a vast many worms, of facilitating attention to them, and taking up little room, and will last a life time. It cost nine dollars.

The paper that led me to the experiment with the Chinese worms, was the following: “*Superiority of Chinese Silkworms.* By certain experiments made by the Pro. Giovanni Lavini on one hundred and fifty grains of the seed of silkworms of China, he found that ten thousand eggs weighed one hundred and fifty grains: 2d, that as well, when just come to life, as in the first and second stages, the worms refused the leaves of the tartaric and papariferous mulberry, and died from starvation; 3d, that notwithstanding by these experiments so great a quantity was lost, he obtained twenty-eight pounds of cocoons, *white and compact*; 4th, that two hundred and ten cocoons formed a pound in Piedmontese weight of eleven ounces to the pound, while of the cocoons of the common silkworm there were not required more than 96, 100, and 104. [!!!] From the other one hundred and fifty grains of seed in Turin, the quantity obtained was ten pounds of cocoons, and these spotted, *incompact*, but white; it is thought, in the absence of the master, the worms had been fed with damp leaves.

“It results from these experiments, that notwithstanding all disadvantages, the Chinese worms are a desirable object of cultivation; that although their cocoons do not reach half the weight of common silkworm cocoons, yet that their quantity and value are far superior: the care they require is the same, and the consumption of leaves nearly equal.” I conclude by observing, that the skein of silk reeled from the Chinese silkworms, reared by my southern friends, is superlatively fine, and attracted the attention of an English silk manufacturer, to whom I shewed it, along with another skein from the cocoons of Genoese silkworms: but it was reeled with great waste.

Accept my respects,

JAMES MEASE.

ART. LXXXII.—*Drains; by the Editor.*

[FROM THE NEW-ENGLAND FARMER.]

Drains used in Agriculture may be divided into two kinds, open and covered. They should be of a size and depth proportioned to the extent of the tract which it is wished to drain, and the probable quantity of water for which they are designed to be channels. They should, generally, be carried through the lowest and wettest part of the soil. It is a rule in making drains, to begin at the lowest place, and work upwards, by which means the water will pass from the workmen, and point out the level. The mud and other materials, which are dug out of a ditch or drain, should not be suffered to lie in heaps by the side of the ditch, but should be spread as equally as possible over the surface of the drained land. In some cases, it will be expedient to transport the earth taken from ditches to the farm-yard or the hog-pen, to form a part of that layer, which good farmers generally spread over those places, to imbibe liquid manure, or make into compost. In many instances, it is asserted, that the earth dug out of ditches, is worth enough for manure, to pay the expense of digging the ditches.

Open drains often answer the purpose not only of conveying off superfluous water, but serve for inclosing fields. But they make a hazardous and inconvenient fence without the addition of a bank, hedge, or railing. The *Farmer's Assistant* says, "When a ditch is made for a fence, it ought to be four feet wide at the top, one or less at the bottom, and about two and a half feet deep; with the earth all thrown out on one side, and banked up as high as possible." Sir John Sinclair states, that "it is a general rule, regarding open drains, with a view of giving sufficient slope and stability to their sides, that the width at top should be three times as much as that which is necessary at the bottom; and, in the case of peat mosses, or soft soils, it should be such as to allow the water to run off without stagnation, but not with so rapid a motion as to injure the bottom."

The American editor of Sir John Sinclair's *Code of Agriculture* observes, that "The most expeditious, effectual, and economical mode of making a drain would undoubtedly be, to use oxen, and a *scraper*, or ox-shovel, as it is sometimes called, an instrument well known in this country in the making of roads. In some cases, this mode might not answer, as in very miry grounds, and lands just cleared of timber. But where lands are very miry, if the process is begun at the outlet of the water—and there, indeed, it ought always to be begun—the next adjoining portion will, generally, be made so dry as to allow being trodden upon in a proper season; and in this way a drain may

by degrees be carried on towards the centre. In nineteen cases out of twenty, drains may probably be effected in this mode. Where the ground will admit of it, two men and a boy, and two yoke of oxen, will accomplish more business of this sort in a day, than half a dozen men in the same time, with only spades and shovels. Whenever the labour of cattle can be substituted in this country for human labour, policy requires it to be done. The surface of wet and miry land is usually full of inequalities; if a *scraper* is employed in draining them, the earth taken from the drain is easily landed in any hollow spot which needs be filled; and if there are no such hollows, or they have already been filled, the earth may be spread over the surface in such a manner as to do the most good. If the earth is not wanted for other purposes, it is recommended to drop and spread it, if practicable, in such a manner as to leave the general surface of the land sloping towards the drain, that the water may the more readily incline towards it, and pass off. At some distance below the surface, in peat grounds, there is usually found a hard stratum of earth, called, in the common language of our farmers, *hard pan*. The hard pan, if ploughed into, scraped out, and spread on the surface, would greatly improve the texture of such soils. This furnishes another argument in favour of using a scraper in draining, for in no other way can the upper earth, taken out of the drains, be so cheaply removed, and put on the adjoining; nor in any other way can the hard pan be so easily broken up and carried off; nor in any other way, oftentimes, can suitable earth be so well obtained, for the purpose of spreading it over the surface with a view to improve the texture of the soil. If the object be to pile the earth from the drains into heaps, with a view to composts, this purpose is completely accomplished by means of the scraper."

To make a covered drain, dig a channel between thirty and thirty-six inches wide at the top, and six inches, or the breadth of a spade, at the bottom, and three feet deep, giving it just descent enough to make the water run briskly. Fill it half full or more of small stones, thrown in at random, and cover them with a layer of straw, leaves, or the small branches of trees with the leaves on them; then fill it up to a level with the surface, with the earth that was thrown out.

In forming small drains, chiefly for retentive soils, the common plough may be used. A mode described in *Young's Annals of Agriculture*, from very ample practice, is this: he says, when he has marked the drains in a field, usually a rod asunder, he draws two furrows with a common plough, leaving a balk betwixt them, about fifteen inches wide; then, with a strong, double-breasted plough, made on purpose, he splits that balk, and leaves a clean furrow fourteen or fifteen inches below the surface; but where the depth of soil requires it, by a second plough-

ing he sinks it to eighteen or twenty inches; it is then ready for the land-ditching spade, with which he digs, fifteen inches deep, a drain as narrow as possible. But the method followed by some farmers, who do not possess ploughs made on purpose for the work, is this: with the common plough, drawn by four or five horses, and usually stirring about four or five inches deep, they turn a double furrow, throwing the earth on each side, and leaving a balk in the middle. This balk they raise by a second bout, in the same manner; they then go in the open furrow twice, with the common double-breast plough, getting what depth they can. After this, they shovel out all the loose mould and inequalities to the breadth of about a foot; and thus having gained a clear, open furrow, the depth varying according to the soil and ploughs, but usually about eight or nine inches, they dig one spit with a draining spade sixteen inches deep, thus gaining in the whole twenty-four or twenty-six inches. But as this depth is seldom sufficient, when necessary, they throw out another, or even two other spits, which makes the whole depth from thirty to forty inches.—*Loudon.*

*Turf-covered drains* may be made as follows: turn up a deep furrow with a strong plough, clear the sod from the earth thus turned up, reduce it to about three inches in thickness, and then place it in the furrow from whence it was taken. The grassy side being placed uppermost, there is a hollow beneath, sufficient to discharge a considerable quantity of surface water, which readily sinks into it. This mode of draining is used on the sheep farms of the Cheviot Hills in England, and is recommended by Sir John Sinclair. It would not answer, however, in lands exposed to the tread of heavy cattle, as they would be apt to push their feet through a covering of turf of no more than three or four inches. Perhaps, in a few years, the verdure would thicken, and the sward strengthen over drains of this kind, so that there would be nothing to apprehend from the tread of the heaviest animals.

*Cultivation of drained land.*—It is well known that swamps, mashes, and other low lands are commonly places of deposit for the lighter and more fertile parts of the soil, washed from the neighbouring hills. Many marshes are, in fact, intervalle land, naturally too wet for profitable cultivation. Wet lands, which receive the wash of higher grounds of a tolerable quality, may be expected to be worth considerable expense in draining. A bog, however, on the top of a hill, not overlooked by high ground, we should suspect of barrenness, and would not be at great expense in draining it, without examining and analyzing the soil in various parts, and becoming satisfied of its fertility. But a drained marsh, which can be flooded at the will of its owner, by means of a dam at its outlet, with water which has washed the neighbouring uplands, may be considered as inexhaustible, and, per-

haps, had better be appropriated to the raising of hemp. That plant exhausts the soil very much, and it would, therefore, be good economy to raise it where the land can be recruited without manure from the farm-yard, &c. If the land is rich, not very dry, or water can be set back in the ditches, in a dry time, to within three or four feet of the surface, it will be quite an object to introduce fowl meadow, (*Agrostis stricta*.)

It is often advisable to let drained lands lie over one summer to ferment and rot, before any attempt to cultivate them. Flooding them completely in the winter, and drawing the water quite off rather late in the spring, will likewise assist in rotting the sod.

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ART. LXXXIII.—*Cultivation of the Hore-radish; by Jens Peter Peterson.*

[FROM THE TRANSACTIONS OF THE LONDON HORTICULTURAL SOCIETY.]

"In the autumn, when the roots are taken out of the ground, select all the small side roots from nine to twelve inches in length, and as thick as a quill, or thereabouts; tie them in bunches, and preserve them in a place protected from a frost, during the winter. The planting is commenced in the beginning or middle of April. In dry weather, divide the ground into beds four feet wide (some make them only three feet wide.) The beds are with me raised a little with the mould out of the alleys, so that they are about a couple of inches higher in the middle than on the sides next the alleys. With a woollen cloth rub off all the lateral fibres from the roots above described, and also pare off each extremity, so that the wounds may be fresh; then plant them, by inserting them horizontally into the sides of the elevated beds, about a foot apart, and in a quincuncial manner, so that the bottom part of the roots is about six or seven inches below the surface, and the top, or crown end of the root, stands a little out of the side of the bed, remembering that the roots are to be inclined a little, so that their lower extremity is rather deeper than their upper. In the latter end of June, or some time in July, cut off with a sharp knife all the lateral fibres of each root, which is done by placing the foot on the lower extremity, and carefully lifting the root out of the ground as far as may be necessary. This operation is performed two or three times every summer. When the operation is over, replace the roots as before, and cover them

with mould. The roots or fibres which are left at the end of the main root, and not disturbed (for the operation must be done carefully,) are sufficient to nourish the plant. In the third year the roots have attained their full size. Laying the roots horizontally has this advantage, that they are easily taken out of the ground without breaking; while cutting off the side roots makes the main root grow straight and thick. It is advisable to plant a bed every year. To keep the ground clear of weeds need not be mentioned."

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**ART. LXXXIV.—*Calves.***

[FROM THE GENESEE FARMER.]

There is no part of the live stock upon a farm that requires more care through the months of November and December than calves. We do not believe it a matter of economy to allow stock of any description to become poor at any time, but if one part suffers more by it than others, at any particular time, we believe it is when calves are allowed to become poor the first fall and winter. The condition in which a young creature is kept the first year, has a wonderful effect upon its future shape and size. Unless there is some pains taken to learn young calves to eat meal or grain before the weather becomes cold, they appear to lose their appetite for food; and it will be found much more difficult to effect it than when commenced in time, and while they are in flesh and spirits. By placing a small trough in the field where calves are pastured, and supplying them with salt and meal, boiled potatoes or pumpkins alternately, they soon become fond of such extra food, even while grass is yet fresh and plenty; and by increasing the quantity as the frost destroys the nutriment of the pastures, they may be kept through the first winter with less risk and trouble than when they are allowed to become poor in autumn. For a general rule, young cattle, that were kept in high flesh the first winter, will be as fit for market at three year's old, as they will at four, where they were stinted in their growth the first winter by starvation.

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## PART III.

## MISCELLANEOUS INTELLIGENCE.

*Mississippi Tomatoes.*—*Buffaloe, Sept. 10, 1832*—Sir,—Being much pleased with your valuable paper, I tender to you for acceptance a few seed of the Mississippi Tomatoes. They are found bordering on the Mississippi swamp, spreading an unusual length, forming a beautiful vine, ornamental; and the seed growing in clusters resembling grapes.

With sincere wishes for the success of your efforts in favour of Southern Agriculture, I remain, your obedient servant.

W. HAILE.

We beg that Mr. Haile will accept of our thanks for the seed sent. We will give them a trial next summer, and report our success. In the mean time it would be gratifying to us to receive from him a further account of this vegetable.—*Ed. So. Agr.*

*Grapes.*—David Thomas, in the *Genesee Farmer*, after stating that he had grapes on the trellis, and on the ground, and did not discover any difference, both being exempt from the rot this year (1832)—observes, “Thou mayst recollect that my grapes on the trellis were much damaged last season, at the height of one foot or more, while those near the ground, on the same vines were generally free from mildew.”

*Vegetables.*—In the early part of the reign of Henry VIII. not a cabbage, turnip, or other edible root grew in England. Two or three centuries before, certainly, the monasteries had gardens with a variety of vegetables; but nearly all the gardens of the laity were destroyed in the wars between the houses of York and Lancaster. Harrison speaks of wheaten bread as being chiefly used by the gentry for their own tables; and adds, that the artificer and labourer are “driven to content themselves with horse corne, beanies, peason, oats, tares and lentiles.” There is no doubt that the average duration of human life was at that period not one half as long as at the present day. The constant use of salted meat, with little or no vegetable addition, doubtless contributed to the shortening of life, to say nothing of the large numbers constantly swept away by pestilence and famine. Till lemon juice was used as a remedy for scurvy amongst our seamen, who also are compelled to eat salted meat without green vegetables, the destruction of life in the navy was something incredible. Admiral Hosier buried his ship’s companies twice during a West-Indian voyage, in 1726, partly from the unhealthiness of the Spanish coast, but chiefly from the ravages of scurvy. Bad food and want of cleanliness swept away the people of the middle ages, by ravages upon their health, that the limited medical skill of those days could never resist. Matthew Paris, a historian of that period, states that there were in his time twenty or thirty hospitals for lepers in Europe.—*Working Man’s Companion*, No. XIII.

**Durable Fence.**—Deacon Winslow Marston, has on his farm a kind of fence which for durability and beauty can hardly be exceeded. On each side of the road adjacent his dwelling, are rows of large button-wood trees, set ten or twelve feet asunder. Into these, when young, cedar rails were inserted as into common posts. As the trees increased in size, the wood formed closely round the ends of the rails and firmly secured them in their places. We have no where else seen this experiment tried on so large a scale. It is certainly a durable and cheap fence, because it will require no repairs at least for one generation, and is moreover constantly increasing in value. Were our roads lined with this kind of fence, it would add not a little to the beauty of the country, and the comfort of the traveller.—*Barnstable Jour.*

**Milk.**—*An easy method of removing the taste of garlic, or of turnips, from milk, and thus preventing it in butter.*—As the dairy is found of much importance to the agricultural interest of this country, the following is offered to the public through the medium of your miscellany. The object of the present essay, is to avoid an inconvenience to which our dairy is subjected, and to convert it into an advantage. The following plan is recommended, as a method of removing the garlic taste from milk, and producing sweet good butter, in place of that which is generally considered so disagreeable.

When the milk is new from the cow, put one quart of boiling water into every gallon of milk; stir it through and put the whole into broad shallow dishes, so that it will not be above two inches deep. Let these dishes be placed on an open shelf, that the vapour may pass freely and entirely away. When the milk has stood in this manner twelve hours, it may be put into the churn all together, or only the cream, as may be most agreeable to the taste or practice of the operator. Milk from cows that have pastured on garlic, when managed in this way, will be quite sweet. The plan here proposed is founded on analogous experience.

The feeding of cows on turnips communicates a disagreeable odour and taste to the milk and butter; but in many parts of Britain they make excellent butter from turnip-fed cows, by a plan similar to the foregoing. The bad taste of the turnip consists in some volatile substance which is evaporated by the hot water. Garlic is much of the same nature, but probably more volatile. Biscuit, baked from garlicky flour, has no taste of garlic; but soft bread or pudding of the same flour, retains it strongly, having both experienced an imperfect evaporation.—*Monthly Mag.*

**Transplanting Trees.**—As the season has arrived for transplanting young trees, a few remarks may not be amiss. First, in taking up trees, be careful not to injure the roots more than is necessary. Trees, after taken out of the ground, should not remain with their roots exposed to the sun and air. If they are to be carried to a distance, the roots should be dipped in a puddle made of strong loam and manure mixed, after which they may be allowed to remain in the air a short time, then packed in moss and well secured with mats, when they may be kept out of ground weeks without injury.

In setting trees, care should be taken that the hole is dug of sufficient size to receive the roots without cutting them; and where the soil is hard, a larger hole is necessary than in loose, rich soils. When the tree is placed in the hole which has been prepared, it should be but very little deeper than it was previous to being taken up. The first dirt thrown upon the roots should be fine, strong mould, but no manure should be added. After a sufficient quantity of soil has been thrown upon the roots to cover them, a sufficient quantity of water should be added to render a thick puddle, in which the tree should be shaken until it has completely filled all the interstices between the roots, after which the ground should be left until sufficiently dry to fill the hole, when it may be trodden down so as to confine the tree in its proper position. Where trees are to be set upon clay soils, which are impervious to water, they should be placed upon the top of the ground, and a mound of earth thrown upon them, for if set in holes, they will be injured by water standing upon the roots.—*Gen. Far.*

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